**REQUIREMENTS ANALYSIS**

**Introduction:**

The project aims to develop an AI-powered web application that provides:

1. City Analysis: Insights on crime index and accident statistics.

2. Citizen Services: AI-assisted responses to queries about government services, policies, and civic issues.

It will use the IBM Granite language model for natural language processing and Gradio for building the interactive web interface.

**Purpose:**

To support citizens and administrators with quick, AI-driven insights.

To simulate an AI government assistant for civic engagement.

To provide an extensible platform for adding future citizen services.

**Functional Requirements:**

ID Requirement

FR1 The system shall accept city name input from the user.

FR2 The system shall generate a detailed analysis of the city including: <br>• Crime Index <br>• Safety statistics <br>• Accident and traffic safety information

FR3 The system shall accept citizen queries related to government services, policies, or civic issues.

FR4 The system shall generate contextual AI responses to citizen queries in a government-assistant style.

FR5 The system shall provide a web-based interface with two main sections: City Analysis and Citizen Services.

FR6 The system shall display AI-generated responses in a clear, user-friendly format.

**Non-Functional Requirements:**

ID Requirement

NFR1 Performance: Responses should be generated within ~10 seconds on GPU and acceptable limits on CPU.

NFR2 Usability: The UI must be simple, intuitive, and accessible for all users.

NFR3 Scalability: The system should allow addition of more services (e.g., healthcare, education).

NFR4 Reliability: The application should not crash under normal usage.

NFR5 Portability: The system should be deployable locally or on cloud platforms (e.g., Hugging Face Spaces).

NFR6 Maintainability: Code should be modular with clear functions (city analysis, citizen interaction).

NFR7 Security: The system should sanitize user input and avoid code injection vulnerabilities.

**Citizens / End Users:**

Should be able to input city names and queries easily.

Should receive understandable, structured responses.

Government / Administrators:

Should use insights for quick overview of city safety trends.

Should explore citizen queries for better civic engagement.

**System Requirements:**

Software Requirements:

OS: Windows/Linux/Mac

Python Version: 3.8+

Libraries:

transformers

torch

gradio

Hardware Requirements:

Minimum:

4-core CPU, 8GB RAM

Model may run slower

Recommended:

GPU-enabled machine (CUDA support)

16GB+ RAM for smooth model inference

**Constraints:**

IBM Granite model may produce AI-generated estimates, not real-world statistics.

Running on CPU can be slow, especially with large prompts.

Requires internet connection for downloading model weights (first run).

**Assumptions:**

Users have basic knowledge of city names and government-related queries.

Users will interact in English language (multilingual support planned for future).

The system is intended for demo/prototype purposes (not official government data).